



Annotating and Indexing Natural Philosophy

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Practices of bookish natural philosophy:
methods of annotating and indexing books.

Coping with information overload:

Reading, compiling and commenting on texts long constituted one of the central practices of natural philosophy, from antiquity down to at least the late 17th century. From Pliny to Ulisse Aldrovandi to Johann Jonston, from Aristotle to Roger Bacon to the professors of philosophy in 17th century universities, to do natural philosophy was in large part to gather, sort and critique causal explanations, reports of observations and philosophical opinions proffered by one's predecessors; the texts that were generated in the process would in turn fuel the discussions of future generations of natural philosophers. In the Renaissance this self-perpetuating cycle of textual commentary faced a massive increase in the range and number of relevant books to be read. The humanist program of recovering lost ancient works made available for the first time in a

millennium a number of works on natural topics, including those of Dioscorides, Lucretius, Archimedes, among others.ⁱ At the same time, travel to the new world as well as to exotic parts of the "old world" yielded new accounts of flora and fauna and human customs. Finally, the new technology of printing made more readily accessible in a wide range of editions, from the bulky editiones principes and opera omnia to vernacular translations or cheap school editions of single works, not only this new material, but also the well-known ancient and medieval authorities still held in high esteem. Printing also fueled the composition of works by an ever-increasing number of modern authors, many of whom would not have had the university or courtly connections to reach any significant diffusion in manuscript.

The result of these converging factors, from the sixteenth century on, was an overabundance of works to be read and referred to in the cycle of textual commentary across all fields of study, including natural philosophy.ⁱⁱ By the second half of the seventeenth century the sense of a crisis due to information overload had reached such proportions that printing, long praised as a "divine" invention,ⁱⁱⁱ had to be defended against the charge of bringing on a new era of barbarity. In 1685 Adrien Baillet prefaced his collection of critical book reviews with this justification:

We have reason to fear that the multitude of books which grows every day in a prodigious fashion will make the following centuries fall into a state as barbarous as that of the centuries that followed the fall of the roman empire. Unless we try to prevent this danger by separating those books which we must throw or leave in oblivion from those which one should save and, within the latter, between the

parts that are useful and those which are not.^{iv}

In response to Baillet, the German professor Daniel Georg Morhof, whose most famous work was a massive annotated bibliography, the Polyhistor, which reached some 2000pp in its final form, acknowledged the complaint that typographers produced too many useless books but concluded: "one should not think that this remarkable art should be condemned; for nothing is good with which some evil from the vice of men is not admixed." Morhof considered the abundance of books to be inevitable, as "the most wise Solomon already then said that there is no end to the writing of books."^v

Despite some early humanist resistance to printing (including a humanist censorship plan) and the institution of censorship by numerous church and state authorities, which often had a devastating impact on individual authors, attempts to stop or stem the tide of books flowing from the presses were limited in their impact in the long run, notably due to the multiplication of possible venues for publication.^{vi} Instead, scholars and teachers responded to the new realities of an overabundance of books with a variety of tools. The book review appeared in the late 17th century not only in works like Baillet's but especially in numerous periodicals devoted in whole or in part to reviews.^{vii} Morhof favored the bibliography, adding a critical dimension to a genre which Conrad Gesner in the mid-sixteenth century had practiced with as little selection as possible, explicitly leaving the exercise of judgment to the individual reader.^{viii} In his advice on constituting a library, Gabriel Naudé recommended the use of reference tools of various kinds--"Common places, Dictionaries, Mixtures, several Lections [such as the miscellanies entitled Lectiones antiquae or variae], Collections of sentences and other

like Repertories." He explicitly countered attacks that might be levied against them: "In earnest, for my part, I esteem these Collections extreamly profitable and necessary, considering [that] the brevity of our life and the multitude of things which we are now obliged to know, e're one can be reckoned amongst the number of learned men, do not permit us to do all of ourselves."^{ix} Finally, at the most immediate level of coping with the books themselves, scholars and teachers on the one hand, and printers on the other responded by formalizing methods of annotation and indexing so as to devise more effective finding devices and aids to memory.

Diligent readers had presumably always taken notes, although we are usually left with almost no clues as to the specific media and methods they used. Portable wax tablets, bits of parchment or slips of paper used for quick jottings are rarely preserved for our analysis; a few literary accounts survive, such as that of Pliny the Elder who was reportedly always ready to note down (or have a servant note down) a passage from a book or an observation.^x The best preserved kinds of notes are those left by readers in the margins of manuscripts or books, although these can be hard to decipher, not only when they have been cropped in later rebinding, or written in small and difficult hands, but also when they rely on a system of symbols or initials devised by the annotator for a personal mnemonic use and therefore left without explanation.^{xi} Other useful sources include the scattered advice of pedagogues and scholars concerning note-taking, and the printed equivalents to personal notes, increasingly marketed from the sixteenth century on as shortcuts for harried readers--notably printed commonplace books, which offered quotations and examples from a wide range of authors sorted under thematic headings,

and printed indexes which guided both first-time and repeat readers of a book to its themes and examples.

Indexing and commonplacing in manuscript and print

Humanist pedagogues formalized note-taking practices as aids to memory, adding to a well-developed medieval repertory of mnemonic techniques.^{xii} Their advice books recommended that schoolboys keep a notebook of commonplaces in which they copied out remarkable passages from their readings under appropriate headings (based for example on the topical or thematic content of the passage, or on its rhetorical utility), for later use in their compositions. Adult readers were advised to continue this practice and to accumulate notes from readings as well as lived experience, notably during travel.^{xiii} Few commonplace books actually survive from the sixteenth or seventeenth centuries; those which do are generally devoted to rhetorical and moral rather than natural topics. Nonetheless one can witness quite clearly the first stage of this kind of note-taking in the marginal annotations often extant in books from this period, including books about nature. Perhaps the final, more laborious stage of copying the passages out into a notebook was not carried out as often as the pedagogues would have liked, and adult readers especially may have relied only on their annotations rather than a separate notebook to find their way back to an interesting passage. In any case, it is clear that the most common function of the marginal note in the early modern period was to indicate the topic or theme being treated in a passage, as one would in selecting a heading for a commonplace book, to make it possible to find and retrieve the passage later if desired.

The annotations would thus serve as a kind of running index throughout the book.

At its most simple-minded an annotation of this kind would copy out into the margin a key word or expression found in the text itself to signal the topic under discussion. The practice was soon imitated in print: to relieve the reader of some of this task, printed editions often included printed marginal summaries (or "manchettes")--these were distinct from the printed notes that provided a bibliographical reference as in a modern footnote.^{xiv} After listing all the topics in the margins, a reader taking notes might then collect on the blank fly-leaves of his book the page references and topics of those passages of greatest interest to him, thus producing a personal and select index to the book. In a printed equivalent to this practice, then, the simplest kind of index offered ready-made in printed books consisted of an alphabetized collection of the marginal summaries, for example at the back of the book.^{xv} If performed strictly mechanically, however, this kind of indexing was often of little help in defining key words or concepts. A case in point is a short French treatise on earthquakes in which a one-page index collects the marginal summaries, but alphabetizes them by the first word of the summary, although it is often only a conjunction ("que," "si" etc) rather than a keyword; nonetheless, this index is so short that it can easily be read through in entirety, which is presumably how it was used.^{xvi}

At its most sophisticated, on the other hand, the reader's work of assigning a heading to a passage of interest involved careful consideration of the many possible contexts in which the passage might be useful in the future and a personal decision as to the one or more headings under which to classify the passage. An analysis of Montaigne's

reading notes indicates that he revised commonplace heading assignments he had already made and pursued unconventional themes in his choice of headings; his reading notes were so thoughtful that they enabled him to bring together diverse material in his Essays in surprising ways.^{xvii} Montaigne explicitly denied in his Essays that he had "sewn together a patchwork of commonplaces" although he acknowledged constant borrowing from other authors; his choice of passages to select and combine was so idiosyncratic and self-consciously novel as to preclude (in his mind at least) their being considered commonplaces. Sophisticated printed indexes did not pursue the idiosyncratic in the way that Montaigne did, but instead offered multiple avenues to each passage, using cross-references and different thematic and topical headings to guide readers with varied interests to useful material. For example in a printed commonplace book, the Theatrum humanae vitae of Theodor Zwinger (in the posthumous and largest edition of 1604), one anecdote, like the bon mot of Vitellius Caesar who upon smelling the odor of a corpse, declared that it was good to smell a dead enemy, but even better to smell a dead compatriot, is indexed under "smell," "odor of corpse," "cruelty" and "pleasure" in the index titulorum, under "Vitellius Caesar" in the index exemplorum (an index of historical figures, in which the cross-references are most complete) and under "enemy" and "compatriot" in the index rerum et verborum. The anecdote is repeated at least four times in the nine-volume, thematically arranged work and a number of cross-references (although not all of them) are provided in the text and in the indexes.^{xviii} While this system of multiple indexes may seem cumbersome, it was clearly designed to help readers approaching the work with different kinds of commonplace headings in mind to locate

anecdotes and quotations of use to them; multiple indexes and index entries and cross-references all served to allow for the idiosyncrasy of any one choice of commonplace heading and to cater to many individual readers' interests.

Manuscript and printed commonplacing and indexing, as practiced by readers in their annotations and by authors and/or printers in drawing up printed indexes, could have two rather opposite kinds of consequences. On the one hand, in an unsystematic distribution of headings with little cross-referencing, related material could easily become scattered under separate headings and different, even contradictory, conclusions could be drawn in different places without those contradictions being readily apparent. The method could thus harbor and tolerate considerable cognitive dissonance. On the other hand, sophisticated thematic indexing or commonplacing which cross-referenced and systematically compared material in related categories could bring material together in new ways, highlighting contradictions and interconnections and potentially yielding new insights. Indeed one can recognize the outline of a method of commonplacing, applied to direct observation more than to bookish sources, in Francis Bacon's ideal of scientific investigation.^{xix} The first step in Bacon's New Organon is to collect and present to the understanding all known instances of a phenomenon, combined with instances where it is absent or present to varying degrees; the next step, induction, proceeds by the systematic confrontation of the material arranged in tables: the prerogative instances revealed in this confrontation help to reach flawless general principles. Bacon's ideal (although he never adequately carried it out) is a method of natural commonplaces derived from direct observation which abides by systematic guidelines for sorting gathered material and

reaching higher levels of generalization.^{xx}

Unsystematic commonplacing

In practice, commonplacing rarely yielded systematic results. Francis Bacon himself, in following his own precepts, left in his unfinished Sylva sylvarum a vast collection of "facts" both bookish and directly observed, arranged under loose topical headings, in which experimentation and critical judgment coexist with what appear to us as credulity and obvious inconsistencies.^{xxi} Nonetheless this work, usually published with the New Atlantis, was among the most widely reprinted of all Bacon's works. As an example of a finished work of natural philosophy displaying many of the same characteristics, I would cite the Universae naturae theatrum of Jean Bodin--an author best known for his political philosophy and for his Method of history in which he recommends commonplacing as a method of reading.^{xxii} In the Theatrum Bodin discusses a vast array of natural historical "facts," which he has accumulated mostly from his readings, but occasionally also from personal observations or second-hand reports. At times Bodin brings together disparate material to pursue a specific question, as if the material had been gathered under a commonplace heading (unfortunately neither annotations nor manuscripts of Bodin's survive). For example, the great heat of the (humid) summers of Muscovy, the common observation that fire burns hotter in wood than in straw and in metal than in wood, and the practice of the sauna in which the air is made humid in order to keep the heat better, lead Bodin to explain that "the thickness of the air, excited by the vapor of the water, keeps the heat, while earlier it could not

because of its fineness."^{xxiii} Although Bodin never actually states the principle that denser things hold heat better than finer ones, he amasses an original array of material on that theme and lays the foundation for such a generalization.

On the other hand, Bodin's method of assigning material to topical and thematic headings is hardly systematic, so that at other times he reaches contradictory conclusions. For example, one careful contemporary reader, who diligently indexed the entire work by copying key words and expressions in the margin, points out that on p. 284 Bodin explains that grafted trees yield more and sweeter fruit because of the more abundant sap called up to repair the wound; but five pages earlier Bodin had explained that older trees yielded sweeter fruit precisely because they were less full of sap.^{xxiv} The reader rightly wonders whether it is the abundance or the absence of sap which causes sweetness in fruit. But Bodin never addresses that general principle; instead he provides contradictory explanations in the answers to two different questions, focused on grafted and on old trees respectively. Here Bodin's unsystematic choice of categories under which to group his material served to hide rather than uncover a thematic link. Commonplacing was a form of personal note-taking in view of gathering copia to supply a composition of one's own. It was thus primarily goal-oriented, often hastily performed, and as a result subject to the vicissitudes of the attention and interests of one reader-turned-author.

Increasingly systematic printed indexes

The printed index was born from the same initial motivation and note-taking practice as commonplacing (by flagging topics in the margin), to facilitate the retrieval of

specific passages. In the course of the sixteenth century printed indexes became increasingly numerous, voluminous and systematic, offering a less idiosyncratic and more multi-purpose guide to a work than commonplace notes. The utility and power of indexes was acknowledged not only by readers who requested them and printers who supplied them, but also by censors who targeted them and authors who in indexing their own works used them as devices for highlighting features that might otherwise have remained hidden from view.^{xxv} The index as we think of it--an alphabetical guide to the contents of a work--first appeared in the 13th century, as a work separate from the work being indexed, undertaken by a collectivity (e.g. of monks) or an individual (notably, in some cases, funded by the pope) to facilitate access to a particularly important text or set of texts: such as the Bible, the texts of the Church fathers or Vincent of Beauvais' Speculum historiale.^{xxvi} By the fourteenth century, major works often included an index supplied by the author. In the sixteenth century separate indexes were the exception, available only for large, canonical works, such as the Bible, Pliny's Natural histories or the Canon of Avicenna.^{xxvii} But, judging from the sequence of signatures, indexes were often printed in a separate run, notably after the rest of the work had been paginated, and could be variously bound at the front or the back of a volume.^{xxviii}

The Latin term already existed in antiquity (designating the index finger or the tag bearing the title of a papyrus roll) and throughout the early modern period was never exclusively used in its modern meaning. Early indexes were often called "tables" and conversely many "indexes" (even in the sixteenth century) are what we would call tables of various kinds--lists of chapter headings or questions in order of their appearance in the

book, or lists of authorities cited without reference to page numbers in the text. In addition the term continued to refer to other kinds of reference markers: among them, the pointing finger symbol used in manuscript and print to call attention to a passage (see Figures 1 and 2), or the hands on a calendrical or astronomical dial.^{xxix} Indexes to manuscripts necessarily used layout-independent means of referring to the text, e.g. by number of book, chapter or section--these devices appeared in the 13th century, as the Rouses have shown, at the same time as the first indexes, as part of the scholastic development of punctual consultation and precise referencing of texts. But as soon as printed texts came with foliation or pagination, and despite the added expense of modifying the references for every new edition of a work, most indexes provided page or folio numbers, often with more specific references to a part of the page--to columns, the side of a folio (recto-verso), or to letters listed in the margins.

Printed indexes appeared as early as the 1480s, notably in herbaria which often provided an alphabetical index of plant names and an index of diseases to be treated, the latter usually classified from head to toe rather than alphabetically.^{xxx} Early indexes are most striking today for their lack of strict alphabetization. Medieval alphabetization generally followed only the first 2-3 letters of a word and the sound rather than the spelling of a word (placing "halcyon" under "a" for example); early printed indexes often offered only a haphazard improvement on that practice. Starting in the second quarter of the sixteenth century some authors called for strict alphabetization--most importantly Conrad Gesner, in his discussion of the significance and methods of indexing in 1548.^{xxxi} Early indexes also tended to neglect cross-referencing to alternative forms of an entry

(e.g. an entry at "ars imprimendi" but none at "imprimendi ars"^{xxxii}) and to list separately (and not always side by side) many different related occurrences of a concept or term (see Figure 3). As a result, while these indexes could lead to all kinds of interesting facts, they were not particularly reliable in providing a systematic mode of access to the text. Indeed one finds many indexes in early sixteenth-century editions, especially in miscellaneous genres where the text was self-consciously disordered and the alphabetical index constituted a primary mode of access to the text, bearing the annotations of dissatisfied readers. In extant copies of Caelius Rhodiginus' Lectiones antiquae or Erasmus' Adages contemporary readers corrected errors in page references, made additional entries, inserted at the proper place in the alphabetization, or even made indexes of their own, of selected pages of the work, or of commonplace headings for example left in an arbitrary order in a printed "index" of headings (in Erasmus' Adages).

Printers understood the demand of readers for indexes, even if they did not always satisfy it. Countless title pages boast of a "most complete" or "augmented and corrected" index or indexes (see Figure 4). In some cases these boasts persisted on the title page even when in the work itself the printer included an apology to the reader for the fact that the index was actually missing, notably for lack of time, or due to an outbreak of the plague, with the promise of including the index in the next edition.^{xxxiii} Occasionally indexes were followed by a list of entries omitted.^{xxxiv} These printers were aware that shortcomings in the index could be an irritant to readers and attempted to placate their audience in advance. Such statements indicate that the printer was often responsible for the index, although we rarely know exactly who did the work. Only occasionally is the

indexer identified, as in Figure 4. Account books reveal that printers employed their own correctors or typesetters for the task (which was paid separately) or on some occasions outside scholars.^{xxxv} In other cases authors no doubt supplied the index with the manuscript to be printed, as one letter accompanying a manuscript indicates.^{xxxvi} Some indexes were preceded by a brief prefatory paragraph detailing the long nights and hard labor spent completing the index and explaining how to use it.^{xxxvii} But we cannot always be sure who is speaking. The more prominent scholars, such as Erasmus, employed amanuenses who could have supplied much of the labor involved^{xxxviii}; but they might also do the work themselves, as J. J. Scaliger did for a large collection of ancient inscriptions, not without complaining abundantly about the rigors of the task.^{xxxix}

The most important evidence that indexes were recognized to be useful and powerful tools was their growth: in the course of the sixteenth century, indexes consistently became more numerous, more copious and more systematic. From his database of 153 works of zoology published in the Renaissance, Laurent Pinon can show a steady rise in the percentage of books of zoology which are indexed, from 0% of incunabula, to 31% and 36% of books published in 1501-30 and 1531-50, to 69% of books published in 1551-70 and 1571-90 and 60% of books published in 1591-1605.^{xl} Indexes clearly added to the expense of producing a book, and as a result tended to be longer in the Latin than in the vernacular (see Figures 5 and 6) and in the folio than in the octavo versions of the same work--in other words, in editions targeted to an audience less sensitive to price than to quality.^{xli} Nonetheless, by the second half of the sixteenth century indexes had spread to almost all genres of natural philosophy, from large and

often disorganized compilations of material (e.g. the miscellanies of della Porta, Cardano or Scaliger; or the Opera omnia of ancient, medieval and recent authors, such as Pliny, Duns Scotus or Ficino) to shorter and more methodical genres such as academic textbooks and treatises (e.g. by Melanchthon, de Soto or Clemens Timpler). Indexes to the same work also grew steadily longer in successive editions; instead of covering only the main points under discussion, indexes increasingly included names and topics mentioned in passing or in digressions.

Finally, indexes became more systematic, due to a number of concurrent trends. By the end of the sixteenth century indexes were generally strictly alphabetized and more detailed, with multiple entries for one item and cross-references to related entries. Related entries were generally consolidated under one main entry divided into subheadings (as is common today). Whereas a number of early indexes consisted of separate sections by language or topic (see Figure 7), the trend toward a single topical index offered greater opportunities for bringing together disparately located but related material. The index could be used precisely to juxtapose disparate treatments of a topic, inviting readers to be aware of potential contradictions and comparisons. Thus in the Encyclopedia of Johann Heinrich Alsted (1630) the entry for "terra" refers the reader in quick succession to a standard Aristotelian description of the earth as stationary and heavy (under "physica"), to geographical discussions of its divisions and parts, and suddenly to the question of whether the earth moves (see Figure 8). From the main "physics" section in the second volume the reader would never know that Alsted addresses the heated question of the Copernican hypothesis; indeed Alsted does so (with no cross-reference in the text) only at

the end of the four-volume work, in a brief section of the miscellaneous "farrago disciplinarum," entitled "paradoxologia." There he discusses the Copernican hypothesis (in one paragraph) with intelligence and respect, as a paradox the truth of which cannot easily be refuted. But Alsted breaks off rapidly, leaving to others to study the question in more depth.

In this case the index performs work that even an attentive reader might not have managed--to span some 4000 folio pages in search of related material in disparate locations. For Alsted the mission of the Encyclopedia was a grand synthesis of all disciplines and schools of thought, and one of his main strategies of synthesis, as others have noted, was the simple juxtaposition of philosophical alternatives, as if the alternatives were not contradictory but could be reconciled by being brought together in one work.^{xiii} However weak this strategy seems to us, it included as one of its elements the single, large alphabetical index at the end of the work, which alone made the reader aware of divergent and disparately located treatments of a single topic. Readers were then left to their own devices in consulting, reconciling or choosing between alternatives which Alsted diligently reported and juxtaposed in the index.

During the 150 years preceding Alsted's Encyclopedia, the index had developed into an increasingly widespread and systematic tool for sorting and accessing the pieces of information in a text. Unlike commonplace indexing and note-taking which were practiced by individuals with idiosyncratic and specific goals in mind, the printed index, clearly a selling point with readers, was designed to cater to as many different interests as possible. As a result indexes grew steadily longer and more detailed, less idiosyncratic

and personal. Whereas personal commonplacing easily left contradictory material buried under different headings, systematic indexing brought to light potential contradictions which might otherwise have passed unnoticed. Although the tolerance for cognitive dissonance characteristic of much medieval and Renaissance natural philosophy^{xliii} is still evident in Alsted's practice of synthesis as uncritical juxtaposition, Alsted's index guided a reader to the theoretical alternatives competing in 1630 in a way that personal note-taking might not have.

Commonplacing remained a central practice of bookish disciplines into the nineteenth century, prompting John Locke for example to publish in 1686 a "new method of commonplaces" in which he explained how one could keep track of entries continued on non-consecutive pages of a notebook through the use of an alphabetical index at the front of the notebook.^{xliiv} In the meantime, however, natural philosophy increasingly relied less and less on bookish methods of research. Furthermore, from the eighteenth century on, commonplace books (such as those of George Berkeley or Thomas Jefferson) typically took the form of a diary of readings arranged in the order in which the texts were encountered rather than according to the systematic thematic order recommended by humanist pedagogues. The latter function had been effectively taken over by the printed index, which performed it more successfully.

FURTHER READING

Ann Blair, "Humanist Methods in Natural Philosophy: The Commonplace Book," Journal of the History of Ideas 53 (1992), 541-51; and The Theater of Nature: Jean Bodin and Renaissance Science (Princeton NJ: Princeton University Press, 1997).

Jean-Marc Chatelain, "Humanisme et la culture de la note," Revue de la Bibliothèque Nationale de France 2 (June 1999), pp. 26-36, among other articles of interest in this special issue on annotation.

Lloyd W. Daly, Contributions to a History of Alphabetization in Antiquity and the Middle Ages (Brussels: Latomus, 1967).

Ann Moss, Printed Commonplace-Books and the Structuring of Renaissance Thought (Oxford: Clarendon Press, 1996).

Mary and Richard Rouse, "La Naissance des index," in Histoire de l'édition française, ed. Henri-Jean Martin, Roger Chartier and Jean-Pierre Viret (Paris: Promodis, 1982-), I, 77-85; and "Concordances et index," in Mise en page et mise en texte du livre manuscrit, ed. Henri-Jean Martin and Jean Vezin (Paris: Editions du Cercle de la Libraire, Promodis, 1990), 219-28.

Rouse and Rouse, "Statim invenire: Schools, Preachers and New Attitudes to the Printed

Page," in Renaissance and Renewal, ed. R. L. Benson and G. Constable (Cambridge, Mass: Harvard University Press, 1982), 201-25; and, more generally, Authentic Witnesses: Approaches to Medieval Texts and Manuscripts (Notre Dame: University of Notre Dame Press, 1991).

Hans H. Wellisch, Indexing from A to Z (Bronx, NY: H. W. Wilson Company, 1991)

NOTES

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i

See Anthony Grafton, "The availability of ancient works," in Charles Schmitt et al. eds., The Cambridge History of Renaissance Philosophy (Cambridge: Cambridge University Press, 1988), pp. 767-91.

ii On the impact of information overload in botany, see Brian W. Ogilvie, "Encyclopaedism in Renaissance Botany: from *Historia* to *Pinax*," in Peter Binkley ed., Pre-modern Encyclopaedic Texts. Proceedings of the Second COMERS Congress, Groningen, 1-4 July 1996 (Leiden: Brill, 1997), pp. 89-99.

iii See for example Rabelais, Pantagruel, ch. 8.

iv Adrien Baillet, Jugements des savans sur les principaux ouvrages des auteurs (Amsterdam: aux dépens de la Compagnie, 1725), "avertissement de l'auteur," p. xi.

v Daniel Georg Morhof, Polyhistor, ed. Johanne Moeller (Lubeck: sumtibus Petri Böckmanni, 1732), I, IV, 2 #6 and I, I, 22 #23.

vi For examples of some early opposition to printing, see Martin Lowry, The World of Aldus Manutius: Business and Scholarship in Renaissance Venice (Oxford: Basil Blackwell, 1979), pp. 26-41. On censorship, see John Monfasani, "The First Call for Press Censorship: Niccolò Perotti, Giovanni Andrea Bussi, Antonio Moreto and the Editing of Pliny's *Natural History*," Renaissance Quarterly 41 (1988), pp. 1-43; Martin Davies, "Making sense of Pliny in the Quattrocento," Renaissance Studies 9 (1995): 240-257;

and Luigi Firpo, "The Flowering and Withering of Speculative Philosophy-- Italian Philosophy and the Counter Reformation: The Condemnation of Francesco Patrizi," in The Late Italian Renaissance 1525-1630, ed. Eric Cochrane (New York: Macmillan, 1970), 266-84.

vii See for example the "accounts of books" present in the Philosophical Transactions.

viii Conrad Gesner, Bibliotheca universalis (Zurich: Froschauer, 1545), sig. *3v.

ix Gabriel Naudé, Advis pour dresser une bibliothèque, tr. by John Evelyn as Instructions concerning erecting of a library (1661) (repr. Cambridge: Houghton, Mifflin and Co., 1903), pp. 59, 61.

x Pliny the Younger, Epistles, III, 5.

xi For an example, see Anthony Grafton, "How Guillaume Budé Read His Homer," in Commerce with the Classics: Ancient Books and Renaissance Readers (Ann Arbor:

University of Michigan Press, 1997), 135-84.

xii See Mary Carruthers, The Book of Memory: a Study of Memory in Medieval Culture (Cambridge: Cambridge University Press, 1990).

xiii See, for example, Johann Heinrich Alsted, Orator (Herborn: G. Corvinus, 1616), pp. 302-3; also Justin Stagl, A History of Curiosity: The Theory of Travel 1550-1800 (Chur: Harwood Academic Publishers, 1995), pp. 50, 121.

xiv On the development of notes of various kinds, see Anthony Grafton, A Footnote: A Curious History (Cambridge, Mass.: Harvard University Press, 1997).

xv For an example of this practice see Kepler's reading of Plutarch's On the Face of the Moon, as discussed in Anthony Grafton, Commerce with the Classics: Ancient Books and Renaissance Readers (Ann Arbor, MI: The University of Michigan Press, 1997), p. 210. On this method of constructing early indexes, see Francis J. Witty, "Early indexing techniques: a study of several book indexes of the fourteenth, fifteenth and early sixteenth centuries," The Library Quarterly 35 (1965), pp. 141-8.

xvi Nicolas de Livre, Discours du tremblement de terre (Paris: Duval, 1575).

xvii See Francis Goyet, "A propos de 'ces pastissages de lieux communs' (le rôle des notes de lecture dans la genèse des Essais)," Bulletin de la Société des Amis de Montaigne 5-6 (1986): 11-26 and 7-8 (1987): 9-30.

xviii Theodor Zwinger, Theatrum Humanae Vitae (Basel: Henricpetri, 1604), pp. 70, 120, 2738, 2755 and indexes at back.

xix For Bacon's favorable assessment of commonplaces, see Francis Bacon, The Advancement of Learning, ed. Arthur Johnston (Oxford: Clarendon Press, 1974), Book II, ch. 14, 129-130.

xx For a similar point see Paolo Rossi, Francis Bacon, from Magic to Science (Chicago: University of Chicago Press, 1968), 207-14.

xxi On this understudied text, see Graham Rees, "An Unpublished Manuscript by Francis Bacon: Sylva Sylvarum Drafts and Other Working Notes," Annals of Science 38 (1981), 377-412.

xxii See Jean Bodin, Method for the Easy Comprehension of History, tr. Beatrice Reynolds (New York: Octagon Books, 1966), ch. 3. For more on Bodin's Theatrum, see the references in "Further reading."

xxiii Jean Bodin, Universae naturae theatrum (Frankfurt: Wechel, 1597), p. 212.

xxiv These annotations are reproduced in full in the appendix to my 1990 Princeton Ph.D. thesis: "Restaging Jean Bodin: the Universae naturae theatrum in historical context," pp. 554-609, notably p. 577, annotations to p. 284. Cf. Bodin, Theatrum, pp. 279, 284.

xxv For an example of the censoring of an index, in which references to a Protestant historian are blacked out of the index to Sebastian Münster's Cosmographia, see Frank Hieronymus, 1488 Petri-Schwabe 1988: eine traditionsreiche Basler Offizin im Spiegel ihrer frühen Drucke, 2 vols. (Basel: Schwabe and Co., 1997), #209, p. 718. I am grateful to Anthony Grafton for recommending this wonderfully rich bibliographical source.

xxvi See the references to works by Mary and Richard Rouse in "Further reading."

xxvii See Hieronymus #7 for a Repertorium ... ex glossa ordinaria (1508); Johannes

Camers, Prima/ secunda pars Pliniani indicis (1525); or Julius Palamede, Index in Avicennae (1557)--I am grateful to Nancy Siraisi for this reference.

xxviii For examples, see Hieronymus, #14 and II, #525.

xxix See Hieronymus, II, #378, illustration p. 1087.

xxx Hans H. Wellisch, "Early Multilingual and Multiscript Indexes in Herbals," The Indexer 11 (1978), pp. 81-102, at 83-84.

xxxi Conrad Gesner, Pandectae (Zurich: Froschauer, 1548), book I, titulus 13 (de grammatica), part 2 (de indicibus), ff. 19r-20v; for an English translation and discussion of this passage see Hans H. Wellisch, "How to Make an Index--16th Century Style: Conrad Gessner on Indexes and Catalogs," International Classification 8 (1981), pp. 10-15; I am grateful to Sachiko Kusukawa for this reference.

xxxii In Hartmann Schedel, Liber Chronicarum (1493), as cited in Witty, "Early indexing techniques," p. 143.

xxxiii See Hieronymus, #342, p. 993; and Theodor Zwinger, Theatrum vitae humanae (Basel: Oporinus, 1565), "Typographus ad lectorem."

xxxiv See for example an edition from the series of works "ad usum delphini," designed for the instruction of the dauphin (son of Louis XIV), which consistently included multiple and copious indexes. A list of "omissa" is appended to the index in Pliny, Naturalis historiae libri 37, ed. Jean Hardouin (Paris: Franciscus Muguet, 1685), tome 5, 1011ff. I am grateful to Nicholas Dew for the suggestion to consult this pedagogically oriented and very successful series of editions with indexes.

xxxv See Das Rechnungsbuch der Froben und Episcopus 1557-1564, ed. Rudolf Wackernagel (Basel: Benno Schwabe, 1881), e.g. p. 58--corrector Bartolomaeus Varolle was paid for indexing a Speculum iuris; or p. 41--the theologian Ulrich Coccius was paid for indexing Eusebius, Ecclesiasticae historiae autores.

xxxvi Hieronymus, #374, p. 1071: Natale Conti, author of a 1556 Latin translation of Athenaeus' Deipnosophistae, accompanied the manuscript to be printed with a letter asking that the index he supplied be expanded and a list of authorities added.

xxxvii See for example, Camers, Prima pars Plyniani indicis and Erasmus, "De duo indicibus," in editions of the Adages starting with the (posthumous) edition of (Basel: Gryphius, 1541).

xxxviii A copy of a 1526 edition of the Adages bears annotations in the hands of Erasmus and of his "famulus" Niccolo Cannius revising the index for a subsequent edition; see Luigi Michelini Tocci, In officina Erasmi: l'apparto autografo di Erasmo per l'edizione 1528 degli Adagia... (Rome: Edizioni di Storia e Letteratura, 1989), p. 41 and figures 6 and 7.

xxxix Anthony Grafton, Joseph Scaliger: A Study in the History of Classical Scholarship, vol. II (Oxford: Clarendon Press, 1993), 504-6.

xl Laurent Pinon, "Les livres de zoologie de la Renaissance," Doctoral dissertation to be defended in December 1999 at the Centre d'Etudes Supérieures sur la Renaissance, Tours. I am most grateful to the author for sharing this information with me.

xli See Hieronymus, #433-34, for a comparison of a folio edition of Sallust, 1564 and an octavo edition of 1571, both published by Petri in Basel.

xlii I am indebted here to discussions with Howard Hotson whose 1991 Oxford D.Phil. thesis "Johann Heinrich Alsted: Encyclopedism, Millenarianism and the Second Reformation in Germany" is forthcoming in print.

xliii On this theme see Edward Grant, "Aristotelianism and the Longevity of the Medieval World View," History of Science 16 (1978): 93-106.

xliv John Locke, "Nouvelle méthode de dresser des recueils," Bibliothèque universelle et historique de l'année 1686, vol. 2, 2d ed. (Amsterdam: Wolfgang, Waesberge, Boom and van Someren, 1687), pp. 315-39. Ann Moss notes a new emphasis in Locke's practice of commonplacing, in that he took less interest in the authorities cited than in the content of the excerpts; see Ann Moss, Printed Commonplace-Books and the Structuring of Renaissance Thought (Oxford: Clarendon Press, 1996), p. ??